WEST Search History

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DATE: Tuesday, April 13, 2004

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		DB=USPT; PLUR=YES; OP=ADJ	
☐	L2	((first or second) adj queue) near10 (collid$ or collision)	5
☐	L1	first queue near5 second queue near10 (collid$ or collision)	0

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L2: Entry 1 of 5 File: USPT Nov 19, 2002

DOCUMENT-IDENTIFIER: US 6483846 B1
TITLE: Middleware-based real-time communication system

CLAIMS:

7. A node coupled to a collision detection based communication network comprising: a first queue that queues real time traffic; a second queue that queues non-real time traffic; a scheduler that schedules real time traffic for sending over the communication network during a first period of time per communication cycle using a deterministic protocol and that provides non-real time traffic for sending over the communication network during a second period of time per communication cycle, wherein the scheduler further prohibits collision of the real time traffic and permits collision of the non-real time traffic.

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L2: Entry 2 of 5 File: USPT Jun 18, 2002

DOCUMENT-IDENTIFIER: US 6408009 B1
TITLE: Method and apparatus for detecting collisions on and controlling access to a communications channel

Brief Summary Text (19):
The system which provides sufficient channel utilization is a distributed queue random access protocol (DQRAP) system, wherein multiple nodes each include a memory for storing a conflict resolution queue which includes a counter that is incremented when a collision occurs during any control minislot (CMS). An index or other identification is attached to a particular count when the local station has attempted to transmit during a control minislot and detects a collision signal resulting from that control minislot. A second queue is also kept within the nodal station, which queue contains a counter that is incremented for each collision-free minislot access. An index is attached to particular queue numbers to identify the ordinal numeral, or position in the queue, occupied by the particular local station. Thus, each station maintains a conflict resolution queue with a counter having been marked to identify when the station may seek access to control minislots and a transmission queue indicating when the station may transmit during data slots. It may be appreciated that when there is no minislot collision and the transmission queue counter is zero at a local station, the station may immediately transmit its data during that data slot. Each station is further provided with a system for sending multiple data slots following the control minislot request containing a destination identifier and the length or number of data slots requested to accommodate, to some extent, variable length data sets which are to be transmitted over a long haul system.

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L2: Entry 4 of 5 File: USPT Feb 20, 2001

DOCUMENT-IDENTIFIER: US 6192028 B1
TITLE: Method and apparatus providing programmable thresholds for half-duplex flow control in a network switch

Brief Summary Text (14):
According to one aspect of the present invention, a method in a network having network stations includes the steps of setting a first queue threshold level for a first queue configured for storing free frame pointers, the free frame pointers specifying respective memory locations available for storing received data frames, receiving a portion of a first data frame from a first of the networks stations, and selectively transmitting a signal to the first network station during reception of the first data frame based on the first queue threshold level and a number of the free frame pointers stored in the first queue, the signal causing a collision with the first network station during transmission of the first data frame. The transmission of the signal to the first network station during reception of the first data frame that causes the collision ensures that network throughput is maximized, since the transmitting station is immediately halted from continued transmission of the first data frame. Moreover, the decision to transmit the signal to the first network station to cause a collision is based upon a number of free frame pointers stored in the queue, where the free frame pointers specify respective memory locations in a global buffer pool available for storing received data frames. Hence, the present invention provides a particularly advantageous arrangement of managing global buffer capacity by providing a memory architecture where memory allocation is based on free frame pointers that specify memory locations available for storing received data frames.

CLAIMS:

1. A method in a network having network stations, the method comprising:

setting a first queue threshold level for a first queue configured for storing free frame pointers, the free frame pointers specifying respective memory locations available for storing received data frames;

receiving a portion of a first data frame from a first of the network stations;

selectively transmitting a signal to the first network station during reception of the first data frame based on the first queue threshold level and a number of the free frame pointers stored in the first queue, the signal causing a collision with the first network stations during transmission of said first data frame;

setting a second queue threshold level for a port queue configured to store an assigned frame pointer, the assigned frame pointer specifying a storage memory location of a stored data frame to be transmitted to a second of the network stations;

identifying the port queue as a destination port for the first data frame based on the portion of the first data frame;

wherein the selectivity transmitting step comprises selectively generating the

signal based on the number of free frame pointers relative to the first queue threshold level and a number of the assigned frame pointers relative to the second queue threshold level; and

setting for the port queue a third queue threshold level having a value greater than the second queue threshold, the selectivity transmitting step further comprising selectivity generating the signal based on the number of assigned frame pointers relative to the third queue threshold level.

4. The method of claim 3, wherein the selectively transmitting step further comprises generating the signal to cause the collision if the number of assigned frame pointers exceeds the second queue threshold level and the third queue threshold level.

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L2: Entry 3 of 5 File: USPT Aug 21, 2001

DOCUMENT-IDENTIFIER: US 6278713 B1
TITLE: Method and apparatus for distributed queue digital data transmission employing variable length data slots

Brief Summary Text (10):
The system which provides sufficient channel utilization is a distributed queue random access protocol (DQRAP) system, wherein multiple nodes each include a memory for storing a conflict resolution queue which includes a counter that is incremented when a collision occurs during any control minislot (CMS). An index or other identification is attached to a particular count when the local station has attempted to transmit during a control minislot and detects a collision signal resulting from that control minislot. A second queue is also kept within the nodal station, which queue contains a counter that is incremented for each collision-free minislot access. An index is attached to particular queue numbers to identify the ordinal numeral, or position in the queue, occupied by the particular local station. Thus, each station maintains a conflict resolution queue with a counter having been marked to identify when the station may seek access to control minislots and a transmission queue indicating when the station may transmit during data slots. It may be appreciated that when there is no minislot collision and the transmission queue counter is zero at a local station, the station may immediately transmit its data during that data slot. Each station is further provided with a system for varying the length of a data slot following the control minislot during a particular frame to accommodate, to some extent, variable length data sets which are to be transmitted over the system. In effect, this provides on-the-fly reallocation of the relative proportion of slot time accorded to control minislots versus data slots, thereby enhancing the overall efficiency of the system. In the event that the transmission queue is equal to zero, the dynamic reallocation enters what may be termed an asynchronous mode, wherein stations essentially transmit without control minislots having been sent. In the event that no data or very little data is being sent, the data slot can be shrunk to as little as the round-trip propagation delay between a station and the head-end. In this system, the propagation delay is selected to be the maximum propagation delay between the most distant station and the head-end. The "shrunken" data slot allows beacon or timing signals to be sent out from a single station, which signals reach the head-end and then are reflected or retransmitted on the receiving lines to all stations other than the head-end station, to provide synchronization for slot times on the network.